Viestintävirasto
Kommunikationsverket
Finnish Communications
Regulatory Authority

Licensing IMT-2000

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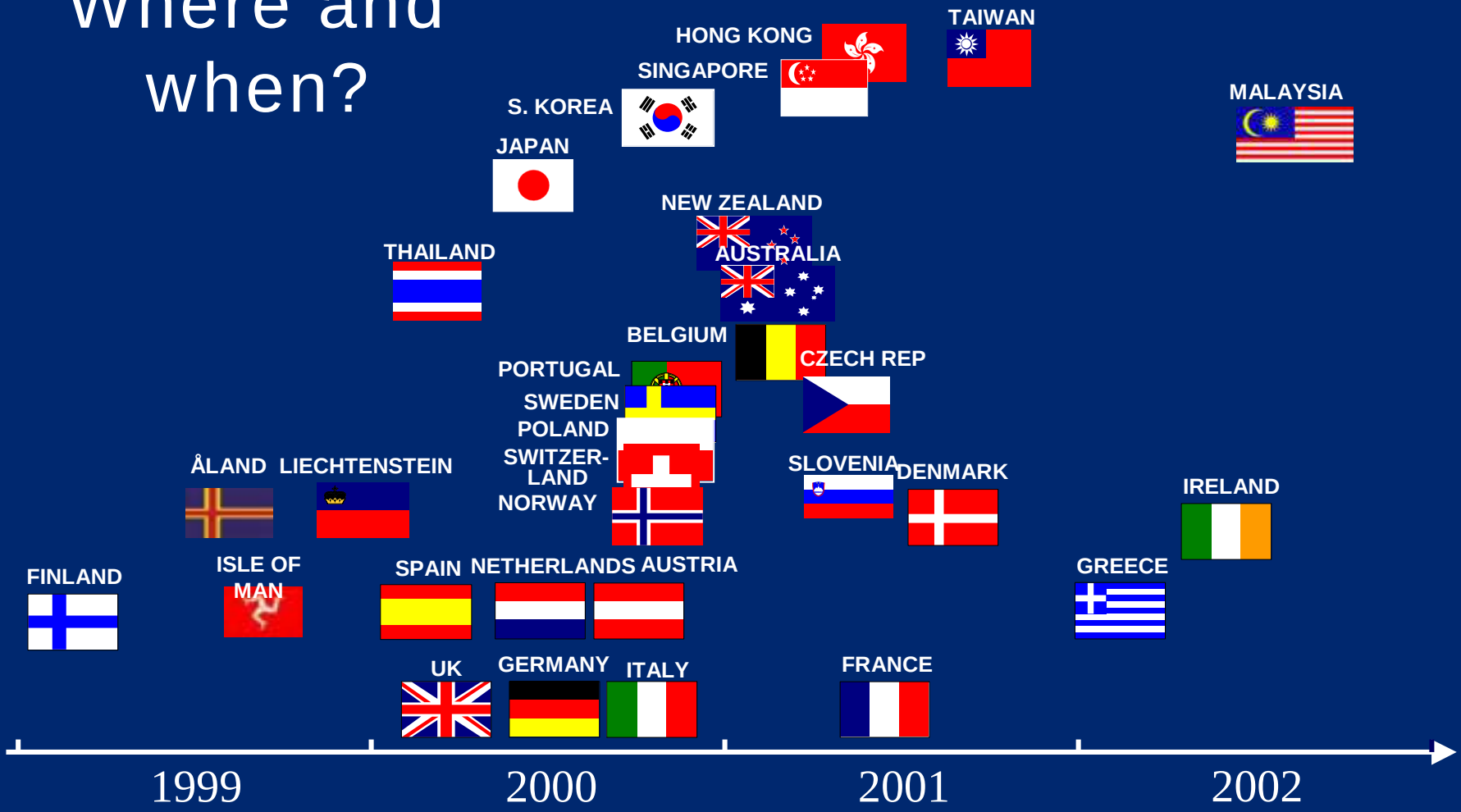
Introduction

- ✓ Radio spectrum, which is a scarce, finite and valuable resource, should be allocated in a way that achieves maximum efficiency
- ✓ Allocation of spectrum, especially for public mobile networks, raises many economic issues
- ✓ Today licensing requires:
  - ✓ Technical knowledge (standards + frequencies)
  - ✓ Knowledge of local market environment
  - ✓ Estimation of the future demand for services
- ✓ More than 100 IMT-2000 licences have so far been awarded globally

Licensing so far

Where and when?



Key questions before licensing

- ✓ How to contribute optimally to the development?
- ✓ How to act so that current decisions will meet the requirements when a commercial service of 3G starts?
- ✓ What decisions are needed now and what could be decided later?
- ✓ How will markets and technology develop?
- ✓ Will the regulative framework change before the networks are implemented?

Licensing methods

- ✓ Auctions
- ✓ Beauty contests
- ✓ Other options

Auctions

- ✓ Reasons given by an administration using auction:
  - ✓ Gives new entrants a fairer chance
  - ✓ Is less prone to legal challenge
  - ✓ Results in spectrum being assigned and used quickly and efficiently
  - ✓ Results in taxpayer sharing in the value of the national resource which spectrum represents

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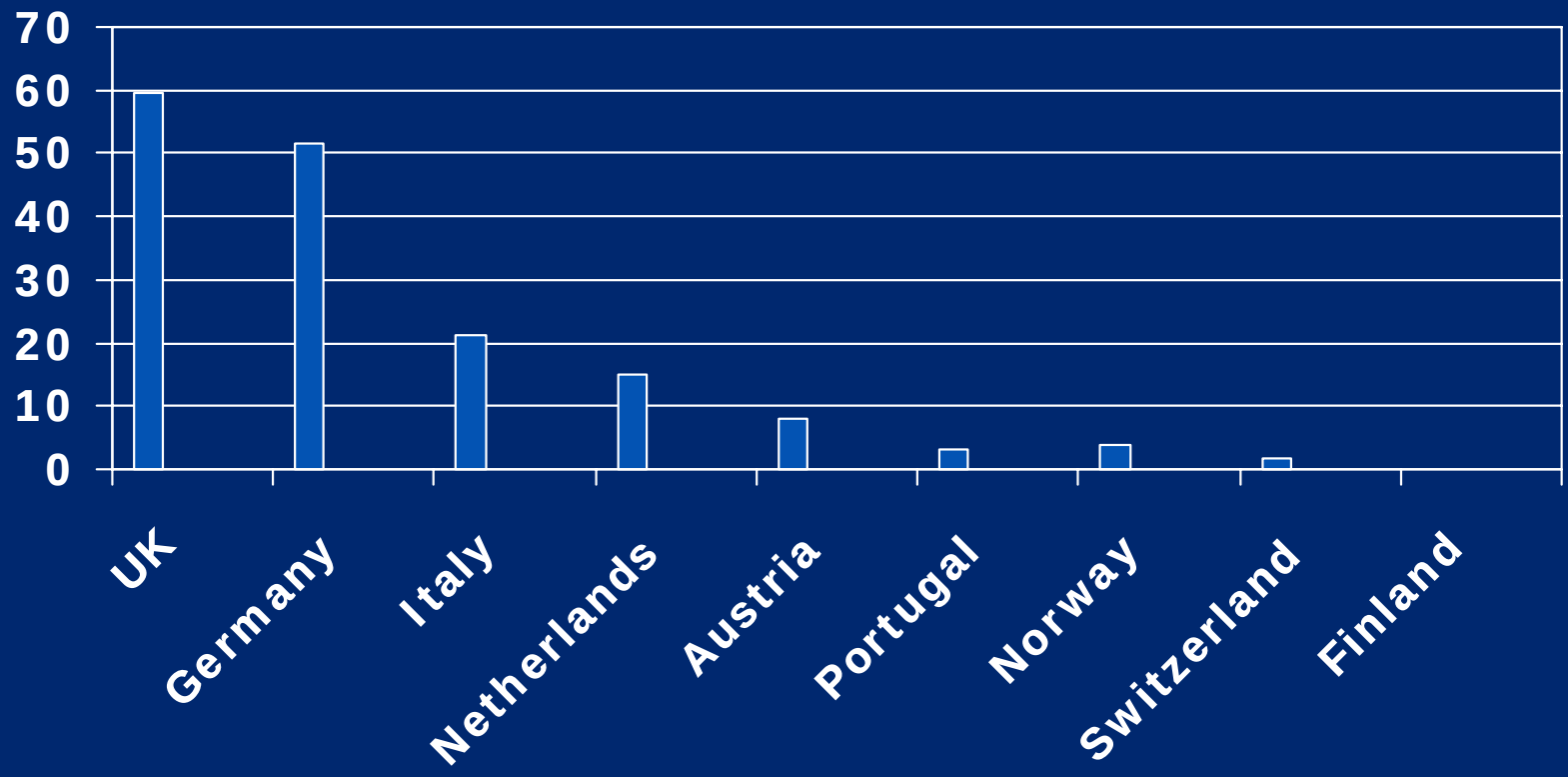
Beauty contests

- Reasons given by an administration using beauty contest:
  - No extra pressure towards higher user prices
  - All available money to the investment in development of the networks and services and for the benefit of users
  - Better chance for new entrants and minor operators
  - Long term benefits for the economy and society more important than short term help to the state budget
  - More freedom for the regulator to amend the regulation if needed (national roaming, convergence, new market needs etc.)
  - Allocation of additional frequencies according to the need (traffic) of each operator (either WARC92 initial bands or WRC2000 additional bands)

Other options

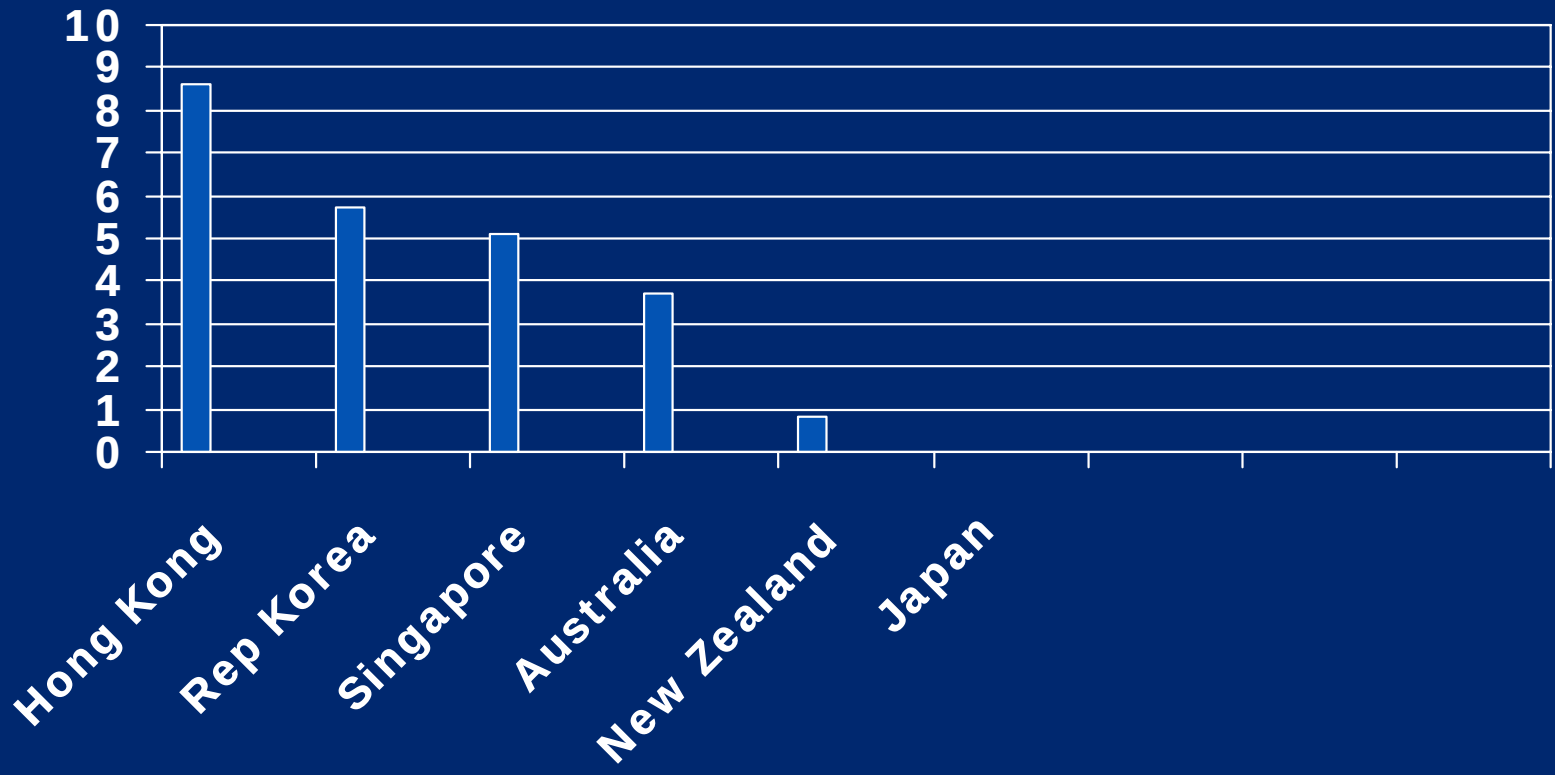
- ✓ Few countries have chosen a hybrid approach
  - ✓ Pre-qualification (beauty contest)
    - ✓ Financial and non-financial criteria
  - ✓ Followed by auction
- ✓ Royalty payments
  - ✓ An example: Fixed fee for first five years, thereafter 5% of the annual 3G revenue
  - ✓ Also avoids heavy up-front payments

Licensing costs for 3G



- Selected European countries/ € (~US$) per inhabitant and 2 X 5 MHz (source: UMTS Forum)

Licensing costs for 3G



- Selected non-European countries/ € (~US$) per inhabitant and 2 X 5 MHz (source: UMTS Forum)

Some thoughts on spectrum price

- ✓ Spectrum must be available at the right price
- ✓ What would be the right market value and the right price?
- ✓ The right price can change between the licensing process and the start of operation
- ✓ Large up-front payments for spectrum will adversely affect the growth of 3G services
- ✓ The end user will always pay for the spectrum in the end

Number of licences

- ✓ Available spectrum and competition issues to be taken into account
- ✓ WARC92 spectrum identified for terrestrial IMT-2000 totals 170 MHz (RR 5.388), initial introduction takes place within this spectrum in a large part of the world
- ✓ UMTS Forum recommendation on minimum spectrum per operator:
  - ✓ 2 X 15 MHz FDD spectrum + 5 MHz TDD spectrum (5 MHz carriers) provides an operator with enough spectrum from the technical and service offer point of view in the initial implementation phase

Number of licences (cont.)

- European Union statistics:
  - 9 countries have followed the minimum spectrum per operator recommendation => 4 operators/country (7 beauty contests + 2 auctions)
  - 6 other EU countries: 4 – 6 operators/country and size of frequency blocks varies (all auctions)

Licensing conditions

- ✓ Coverage (population/geographical coverage)
- ✓ Roll-out
- ✓ Sharing of facilities
- ✓ Sharing of infrastructure
- ✓ Roaming
- ✓ Miscellaneous items

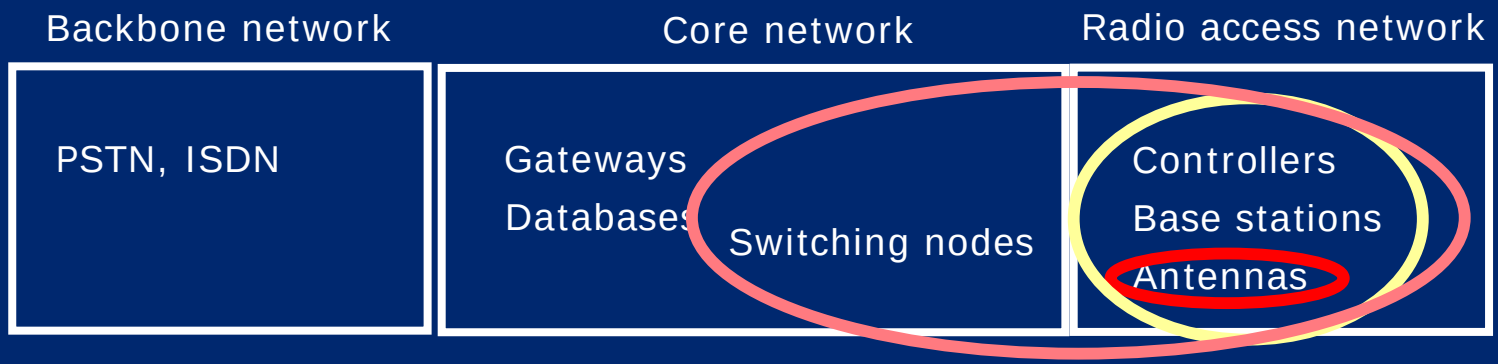
Coverage and Roll-out

- ✓ To encourage the efficient use of spectrum by not leaving it unused longer than necessary
- ✓ To encourage infrastructure competition
- ✓ Coverage obligations introduced in many licences issued so far
- ✓ Roll-out of the 3G networks should be done according to market demand
- ✓ Coverage obligations should be linked to level of network service capability
- ✓ There is a danger of regulation driving the market if the level of these obligations is set too high

Sharing of facilities and infrastructure

- ✓ Sharing of facilities can give a rapid deployment of networks and introduction of services
- ✓ Sharing of network infrastructure may conflict with the goal of infrastructure competition
- ✓ Sharing should be on a commercial basis

The issue has emerged in Europe after the licensing process



Roaming

- ✓ National roaming may be a way to achieve coverage of unprofitable regions
- ✓ Licence conditions should allow commercially negotiated roaming agreements, if infrastructure competition is maintained
- ✓ National roaming should only as an exception be mandatory. It can during a transitionally period help new operators to establish a market

Source: UMTS Forum Report #4

Miscellaneous items

- Offered transmission speed
  - Some licences indicate minimum requirements, e.g. 256 kbit/s (depending on the level of mobility)
- Duration of the licence
  - Offering licences for a period of less than 10 years would not encourage any serious deployment of infrastructure
- Technical standard
  - Some licences clearly indicate the standard to be used, some ”within the ITU IMT-2000 family of standards”

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Some thoughts on licensing conditions

- ✓ Several issues mentioned before can be regulated within the licensing conditions
- ✓ An alternative is a light licensing regime, which must be guaranteed by:
  - ✓ Operator's complete confidence in the future regulatory framework
  - ✓ Regulator's trust in the expectations and promises given by the operator
  - ✓ Close cooperation between the regulator and the operator

Licensing summary

- Number of licences:
  - Should consider the local environment and take into account the minimum spectrum per operator
- Timing:
  - Market demand and competition are the driving forces
- Method:
  - Avoid high up-front payments
- Licensing conditions:
  - Rights and obligations in regulation, not in licences

The ultimate goal should be to maximize consumer welfare, both today and in the future

Thank you for your attention!